

REMARKS

General Remarks

Claims 16 - 18 and 20 - 25 are pending in the application. Claims 1 - 15 are presently canceled, without prejudice or disclaimer, in an effort to advance prosecution. Claims 19 and 26 - 55 are also canceled without prejudice or disclaimer. No claims are currently amended.

Applicant has carefully studied the outstanding Office Action in the present application. The present response is intended to be fully responsive to all points of rejection raised by the Examiner and is believed to place the application in condition for allowance. Favorable reconsideration and allowance of the application are respectfully requested.

Claim Rejections

Claims 1, 3 and 4 stand rejected under 35 U.S.C. 102(b) as being anticipated by Whitcomb (US 6,030,154). Claims 1 - 4 stand rejected under 35 U.S.C. 102(b) as being anticipated by Kosmowski (US 5,529,441). Claims 5 - 7, 9 - 11 and 13 - 15 stand rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Kosmowski and Lichtenstein (US 6,205,364). Claims 16 - 18 and 20 - 25 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Taff in view of Lichtenstein.

Applicants respectfully traverse the rejections as applied to the rejected claims.

Whitcomb et al. discloses a minimum error algorithm / program for optimizing the drilling position of a multi-layer printed circuit board prior to drilling. Kosmowski et al. discloses drill coordinate optimization for multi-layer printed circuit board to correct for interlayer shift during lamination. Taff discloses nonlinear image distortion correction in printed

circuit board manufacturing in which non-linearly corrected image data is produced to match an initial set of image data for layers that are not attached. Lichtenstein discloses a method and apparatus for registration and control during processing of a workpiece, particularly during producing images on substrates in preparing printed circuit boards. The marks do not pass through any layer of the workpiece.

In an effort to advance prosecution after final rejection, Applicants presently cancel claims 1 – 15 without prejudice or disclaimer. The rejection of these claims is thus obviated.

Regarding claim 16, the Examiner notes that the “amendment to the claim does not require that the two boards be attached at the time of imaging...”. Applicants respectfully note that claim 16, as amended, however includes the requirement “wherein said lower layer is attached to said upper layer”, *inter alia*.

Regarding claim 17, the Examiner notes that the “amendment to the claim does not require that the two boards be attached at the time of imaging...” Applicants respectfully note that claim 17, as amended, however includes the requirement “said upper layer being attached to at least one lower layer of circuitry”.

With regard to the Examiner’s response to the Applicant’s arguments, Applicant appreciates that the Examiner believes that two references showing visual imaging of a pattern on the lower layer through an upper layer, which is attached to the lower layer, have been provided. However, Applicants respectfully submit that that layers in the Taff and Lichtenstein references the respective are not attached, but rather they are intended to be attached. As noted above, the language of claim 16 includes the requirement that “said lower layer is attached to

said upper layer”, while claim 17 includes the requirement of “said upper layer being attached to at least one lower layer of circuitry” in a multi-layered printed circuit board.

Finally, Applicant’s respectfully point out that the provision of references which show “visual imaging of a pattern on a lower layer through an upper” layer fails to disclose a feature required by independent claims 16 or 17, since “visual imaging of a pattern on a lower layer through an upper layer” (as advanced by the Examiner) is an entirely different invention from the invention claimed in either of claims 16 or 17.

Claim 16 requires “detecting at least two holes provided in the upper layer”. Claim 17 requires “acquiring an image of the at least one hole” formed in an upper layer and “calculating a location of the at least one hole from analysis of the image”. Applicant respectfully submits that these requirements of claims 16 and 17 respectively are entirely different than the feature of visually imaging a pattern through the upper layer arguably found the Taff / Lichtenstein combination, as advanced by the Examiner. Inasmuch “visual imaging of a pattern on a lower layer through an upper layer” is believed by the Examiner to be an essential feature of claims 16 and 17, because neither of claim 16 or 17 in fact requires such a feature, Applicants respectfully submit that the Examiner has failed to support a *prima facie* showing of unpatentability of claims 16 and 17.

In view of the foregoing the Examiner is respectfully requested to withdraw final rejection of claims 16 and 17, and of claims 18 and 20 – 25, which are each patentable at least by virtue of their dependency from claim 17.

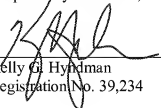
AMENDMENT UNDER 37 C.F.R. § 1.116
U.S. APPLICATION NO. 10/045,651
ATTORNEY DOCKET NO. Q80298

Conclusion and request for telephone interview

In view of the foregoing, this application is believed to be in order. Reconsideration and allowance of this application are respectfully solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly invited to contact the undersigned attorney at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,



Kelly G. Hyndman
Registration No. 39,234

SUGHRUE MION, PLLC
Telephone: (202) 293-7060
Facsimile: (202) 293-7860

WASHINGTON OFFICE

23373

CUSTOMER NUMBER

Date: May 30, 2006